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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/897,141	07/03/2001	Masanori Yabu	0229-0649P	1199

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EXAMINER	
DUONG, THANH P	

ART UNIT	PAPER NUMBER
1764	

DATE MAILED: 08/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/897,141	YABU, MASANORI
	Examiner	Art Unit
	Tom P Duong	1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 July 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-6, 8-13, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuchiya '217. Regarding claims 1-2 and 16, Tsuchiya '217 discloses a golf club head (Figs. 1-7) comprising a Ti-alloy face (21) with thickness of 2-3.5mm, a Ti-alloy crown (22) with thickness of 0.6-3.0 mm, a sole (23) with thickness of 1-3 mm, a sidewall extending from the periphery of the sole towards the crown (Fig. 7) excluding the face, and a neck to be fixed to a shaft. Tsuchiya discloses it is conventional to form the club head parts by casting method including the sole and wall member (Col. 2, lines 24-38). However, the conventional casting technique suppresses enlargement of sweet spot (Col. 1, lines 54-54), difficult to control center of gravity (Col. 1, lines 64-65), poor flexion or coefficient of restitution (Col. 2, lines 13-15), and small moment of inertia values (Col. 2, lines 59-69). The above drawback is overcome in Tsuchiya's invention by fabricating the face and crown area thinner (Col. 2, lines 15-24) using plastic working or plastic deformation process (Col. 4, lines 61-68) or plastic deformation process in order to accomplish large sweet spot, improved coefficient of

restitution, and moment of inertia (Col. 3 lines 64-64). With respect to the sole thickness ratio (t2/t1), Tsuchiya discloses the sole thickness ranging from 1 to 3 mm (Col. 4, lines 50-51), wherein t1 is 2.0-3.5mm and t2 is 0.6-3.0 mm. Regarding claims 2- 3, Tsuchiya discloses the club parts are welded together (Col. 5, lines 5-7). Regarding claims 4-6 and 9, Tsuchiya discloses the head volume is 190 cc or larger (Col. 3, lines 50-52) and a density value of 4.5 g/cm^3 (Table 1). Regarding claim 8, it is obvious that the plastic working process utilizes rolled sheet metal as the starting material. Regarding claim 13, Tsuchiya discloses the moment of inertia of 3000 or larger (Col. 3, lines 64-69). Regarding claims 10-11, it is obvious that the golf club of Tsuchiya can be fabricated with smaller sweet spot height and a depth of center of gravity less than 36.0 mm at most thru routine optimization, since the fabrication process of Tsuchiya utilizes the same material composition, material thickness, and fabrication techniques. In addition, the corresponding properties from it test results are similar to the claimed invention. Claims 12 and 16 recite limitations similar to claims 1-6 and 8-11; thus, claims 12 and 16 are rejected for the same reasons as applied to claims 1-6 and 8-11, above.

2. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuchiya '217 in view of Peterson (6,162,133) and Hoshi et al. (5,205,560). Tsuchiya discloses it is conventional to fabricate club head which includes the sole and sidewall with casting material (Col. 2, lines 24-30), but does not disclose expressly the lost wax casting technique. Peterson teaches that the club head 10, including the sole plate and side

wall, is fabricated as a one-piece body 32 by casting such as lost wax casting (Col. 4, lines 23-63) in order to eliminate the disadvantage of welding and mechanical fastening (Col. 2, lines 37-41). Hoshi '560 also teaches that it is conventional to fabricate the club head with lost-wax casting process. Thus, it is obvious in view of Peterson and Hoshi to one having ordinary skill in the art that Tsuchiya utilizes the conventional casting method including the wax-casting process. Note, the patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP 2113.

3. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuchiya '217 as applied to claim 1, 2, or 12 above, and further in view of Igarashi (6,238,300). Regarding claims 14 and 15, Tsuchiya fails to disclose the walled sole member is made of titanium alloy (Ti-6Al-4V) and the face member and crown member is made of titanium alloy Ti-15V-3Al-3Sn-3-Cr whose strength is higher than that of the titanium alloy of the walled sole member. Igarashi teaches the walled sole member (52A, 52B) (Col. 1, lines 9-20) and the face member 56 and crown member 54 can be made from titanium alloy such as Ti:6-4 or beta alloy Ti-15-3-3-3-3 depends on material cost, material strength, and attachment technique (Col. 3, lines 49-62). Thus, it would have been obvious in view of Igarashi to one having ordinary skill in the art to modify the club head of Tsuchiya with the face and crown members with a higher strength alloy

than the walled sole member as taught by Igarashi if material strength is one of the main design criteria for the face and crown members.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tom P Duong whose telephone number is (571) 272-2794. The examiner can normally be reached on 8:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tom Duong
August 13, 2004
TD

Glenn Caldarola
Supervisory Patent Examiner
Technology Center 1700